





Thomas Penn.

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A
T R E A T I S E
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P L A N T I N G,
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T H E M A N A G E M E N T
O F
F R U I T T R E E S.

C O N T A I N I N G,

- | | |
|---------------------------------|-------------------------------|
| I. The Preparation for Borders. | IV. A RECEIPT to prevent |
| II. The Method of Planting. | Blights, and to cure them |
| III. The proper Soils for all | when they happen. |
| Kinds of Fruit-trees that grow | V. The Culture of Turnips; |
| in the common Ground in | with some Directions to ren- |
| England; with the Method of | der them more beneficial than |
| Pruning and Dressing them. | at present. |

BY JOHN KENNEDY,

Gardener to Sir THOMAS GASCOIGNE, Bart.

L O N D O N :

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P R E F A C E.

THE Author of the following sheets takes this opportunity of returning thanks to the Public for the favorable reception of his Treatise on Planting and Gardening, &c. which affords him the most sensible pleasure and satisfaction.

He thinks himself obliged to acknowledge, in a particular manner, his obligation to those Gentlemen who have honored him with letters of approbation of his former Work, as well as to those who have generously confessed the singular advantage their Pineries have received by applying his preparation for destroying those insects so pernicious and destructive to the Ananas or Pine-Apple, which it has effectually completed.

Many purchasers of his work, as well as his friends, having requested him to publish his thoughts upon the Management and Pruning of Fruit-trees in general, assuring him that it would prove a valuable addition to his other work.

In compliance with their flattering request he shall venture to lay before the Public a course of many years practice, which he has followed with the greatest success.

His method of managing the different Soils proper for Borders, for Planting Fruit-trees, and of Pruning them, if not the best, has at least the merit of being so new, that it differs entirely from any thing he has seen, both as to theory and practice.

The management of Fruit-trees has been treated at large by most of the
eminent

eminent writers on the subject of Gardening. The Author has read them with attention, and while he sees great objections to all their plans, finds less reason to attach himself to any one of them, as there are hardly two writers of one opinion; but it is his business to endeavour to be as accurate as possible himself, and not to criticize on the defects of others.

He would not however have it understood, that by reading this treatise every person who can distinguish a peach from a pear, will be able to undertake the management of Fruit-trees, &c. for if books could make proficients, there would be no occasion for masters in any art or branch whatever.

Neither should any one attempt to plant or prune without having been some time under a skilful person, whose practical instruction being

added to a careful observation of the rules here given, cannot fail of succeeding to the utmost expectation of those who follow them, which is the most ardent wish of the Author.

The growing of Turnips is become an object of the greatest consequence for feeding of Cattle ; the Author, therefore, has from many accurate observations added a chapter on their cultivation, his method has been followed by many who have raised them with the greatest success for years in different parts of England. The great waste every year, occasioned by their rotting (and the larger they are the more they are liable to it) must be a considerable loss to the grower, which may be avoided in a great measure by pulling and housing them, especially the large ones, in dry weather, which from repeated trials he is warranted to say, will effectually preserve them.

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C H A P. I.

Of Pruning Fruit-Trees.

IN my treatise on gardening, I gave particular directions for making Kitchen-gardens in such a manner, that neither the roots of the wall-trees, nor those planted round the quarters, for dwarfs or espaliers, can meet with any obstructions to canker and impede their growth. The method in practice, is to mark out the walks in kitchen-gardens, and to remove all the good earth, and make them the common receptacles for all manner of rubbish during the making of the whole garden.

THIS method is very prejudicial to the trees round the quarters, which feldom have above four feet to fspread their roots, before they ftrike into the rubbifh. This is one caufe of their being fhort-liv'd, and producing fo indifferent fruit after the fourth or fifth year.

IT is a general complaint that all directions for pruning are fo prolix, that they are difficult to be underftood, even by thofe of experience in that branch. To remedy thefe defects I fhall ufe my utmoft endeavours to render this treatife as plain and eafy as poffible.

THERE are many things materially neceffary to be confidered befides pruning, in order to have healthful trees, without which it is impoffible to have good flavoured fruit.

THERE are gardens that produce fine fruit of a high flavour, and others contiguous to them, whole fruit are not much fuperior to crabs in relifh, although
managed

managed (as to pruning) both exactly after the same method.

THIS difference of flavour is generally attributed to the situation; but never to the soil, from a supposition that there is little difference.

A GOOD situation is certainly of great advantage to the flavour of fruit; but if the soil is improper, though ever so skilfully pruned, the fruit will not be high flavoured, although often fair, and beautiful to the eye.

THE general method in making the borders in kitchen-gardens, is to make them rich, without regard to the different kinds of fruit to be planted in them.

WHEN thus prepared the trees will often thrive, look well, and produce great quantities of fruit; but it will be very inferior in flavour to the fruit of those trees that are planted in soils which are properly adapted for them.

To remedy this evil, I shall give directions for making the borders fit for all kinds of fruit ; and to render this easy, it will be proper to plant a good many of the same sort together, and not promiscuously, which is the general practice ; for if they are promiscuously planted, it will be difficult to prepare the borders properly ; in that case there must be a change in the preparation every five or six yards.

IN small gardens, where there is only room for a few trees, perhaps one or two of a kind, it will be easy to prepare the borders at first ; but difficult to keep so many parcels of compost for recruiting them : when that happens, to prevent trouble, all the borders may be made of two sorts, viz. for peaches and cherries (as will be directed under that head) which will answer tolerably well, and is the best way where a gardener is not kept.

IN large gardens, where there is a large collection of fruit-trees, the preparation
answers

answers for the same kind of fruit on all aspects. There must always be a quantity of each sort of the compost ready prepared, to lay on the borders every third or fourth year; this will keep the trees many years in good heart, and the fruit will be very high flavoured.

It will be of great advantage to the compost for the borders to be turned over three or four times in a year, and to be two years old before it is used.

It will add greatly to its fertility to be turned over in winter when its hard frozen, and all the frozen parts turned into the inside; it should not be turned when covered with snow, unless it is swept clean.

HAVING now given directions for the management of the compost, before I proceed any further, shall give general directions for planting all kinds of fruit-trees, on walls, dwarfs, and espaliers, on borders and in orchards.

WALL.

WALL-TREES should never be planted nearer the wall at bottom than nine inches; if they are planted so close, for the bole to press against the wall, it often gums and cankers them.

THE proper distances being marked on the wall (which should be ascertained for each kind of fruit) open a hole a foot square, and sixteen inches deep, in which lay a flat stone at least two inches thick, and on the stone three inches of the mould prepared for planting.

THE roots of the tree must be pruned so to stand sloping on the mould laid on the stone, the head inclining to the wall; fill up the hole with the planting mould, and tread it gently; then loosen it an inch deep with the spade, after treading it. Cover eighteen inches round the bole of the tree with moss, two inches thick, pressing it flat with the hand; fasten the tree to the wall with a single nail and shread, to prevent its being shaken with the wind, but so loose that the tree
may

may not hang by the shread, if the ground should chance to sink. There is nothing further necessary, until they are headed down in spring, which should never be done before the buds begin to swell.

THE trees for walls are generally brought from some distant nursery, and are some days out of the ground; for which reason all the small roots must be cut close off the main roots, and these properly shortened, and never left crossing one another.

It is preferable for all kinds of wall-trees to have but one stem to be young and vigorous. If the ground is tolerably dry in autumn (after the leaves are fallen) the sooner fruit-trees are planted the better; but if the bottom is of a cold watery nature, the spring is preferable.

If the trees to be planted are on the spot, they may be removed with safety, although the leaves are fresh: when that is the case,
there

there is no occasion to cut off any of the small roots ; but if they are out of the ground a day, the small roots dry, the bark shrivels, and the tree often decays ; for which reason, it is best to let the leaves drop before the trees are removed to a distance.

CLEAN moss is preferable to all kinds of straw or dung, to lay round new planted trees ; it breeds no vermin, and keeps out the frost and drought : great care must be taken not to bring grubs with it from the field, for it is often pulled up in great pieces, in which there are many : it would be worth the labour to leave it all over before it is laid round the trees.

THE planting of dwarfs or espaliers in the borders of kitchen-gardens, the making of the holes, and laying the flat stones, is the same as for wall-trees ; but there is some difference in the manner of pruning the roots.

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IN pruning the roots of wall-trees, those on the side next the wall should be all cut off, as there is no occasion for any but those that point from the wall; but for dwarfs or espaliers, the case is quite different; the roots should be cut to spread as regular as possible all round, that they may be able to defend the tree, let the wind blow from what quarter it will.

IF the trees for dwarfs or espaliers are planted in autumn, it would be best to fasten them to a stake, and head them down in spring. A wet bottom is very bad for a kitchen-garden, especially to all kind of trees; for although some of them may thrive tolerably well, and bear a great quantity of fruit, it is never good, if the soil is prepared with all the art imaginable.

ESPALIERS are now banished all good gardens, for many reasons: if the trees are on paradise-stocks, they are of short duration, and often decaying in patches, which makes them very unsightly. If on stocks,

stocks, unless they are allowed a great deal of room to spread and to grow to six feet high, they require so much cutting to keep them in order, that they seldom produce much fruit.

WHEN the espaliers are allowed to grow high, unless the quarters of the kitchen-garden are large, in summer they cause the herbage to draw up weak, it is then never so good, nor so well tasted as when it has free air.

ESPALIERS are also stiff and formal, and spoil that agreeable rural look of trees growing in the natural way.

APPLES on French paradise-stocks, planted at eight or nine feet distance, pruned and kept in an easy manner, make a fine appearance, and produce better fruit, and in greater quantities, than when they are in espaliers.

TREES planted and trained thus, admit
free

free air into the quarters; and the little openings give a view into them which is pleasant to those that delight to walk in a kitchen-garden.

If the kitchen-garden is large, the trees on the south-side of the quarters, behind the north wall, the inside of the garden, may be planted with apples on Dutch paradise-stocks, and allowed to grow as high as the wall; it will be very agreeable in summer: they last much longer than the French-stocks, and will bear more and finer fruit; the French paradise-stocks are apt to canker, but if the walks are good earth, the same as the borders, they will not be so liable to that misfortune.

To prevent any unsightly trees in the borders round the quarters, it would be right to have a few spare ones growing in a corner of the garden, which might be taken up with a bole, and put into the place of any tree that is cankered or decaying. If the tree that is taken up is not

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far

far gone, it may be planted in some bye place ; moving often stops the canker. The only objection to training dwarfs in this manner is, that the fruit is more liable to be blown off than from espaliers ; if the first shoots are trained horizontal for two years, they will grow stiff, and will not be much hurt by the strongest winds. This manner of training will also answer for common orchards, the fruit will be much easier to gather, and not be so subject to be blown off by the wind, as when the trees are high : it may be objected, that the cattle would crop the lower branches.

THE laying flags at the bottom of all fruit-trees is good in all kinds of soil. If the roots are dressed, and the trees planted as directed, they will never go lower, but spread horizontally ; they will continue many years, and bear excellent fruit.

IT is recommended by some, and the practice of many, to lay a quantity of rubbish

bish in the bottom of borders, to prevent the roots getting down into clay, sand, or gravel: this never answers; the roots will strike into the rubbish, and even through it, if a foot thick, into the sand, &c. but as soon as the roots reach the rubbish, the tree cankers and the fruit spots.

THE roots of fruit-trees should not be above one foot deep in the ground, for the soil below that is hard, dry, and full of rancid vapours, even in good soil. The nourishment the roots draw from thence spoils the rich flavour that those fruits have whose roots are no deeper than the air and rains penetrate.

It is the general opinion that old trees cannot bear good fruit on account of their age; this is seldom the case; the reason indeed is, all the small roots are spread too deep into sand, gravel, or clay; hence they canker, and the fruit is spotted.

APPLES on crab-stocks will last many years, and bear good fruit. An instance of this I saw in the ruins of a monastery which had been in the same family ever since its dissolution, and by tradition the same trees that were in the place when it first came into their hands some hundred years ago.

THE trees were much decayed, but what were alive of them bore fair round fruit, equal except as to size to any tree of ten years old. The whole orchard was paved with bricks; the soil twenty inches deep, a fine rich loam. There was a plantation of pear-trees about thirty years old; which had covered the wall some years, and produced great quantities of fine fruit; at last they began to canker, and the fruit to pit: they became every year worse. But the following experiment brought them to flourish again:

THE ground was opened all round the bole of the tree at three feet distance; the
roots

roots were cut off all round at that distance ; the bole thinned to the thickness of two feet, a stone put under it, and the whole filled up with a good fresh loam.

THIS was performed in winter ; it was late in spring before they came into leaf. They made no shoots, and the few small leaves they had soon decayed : they had some water in the summer. This is a proof of the great utility of preventing the roots from striking too deep into the ground.

NEXT spring they were in leaf as soon as any of the same kind, made little wood, but clean, and had some fruit, which was fair and clean. The third year they were as vigorous as when first planted, quite clear of canker, and produced a great quantity of fine fruit.

HAVING given directions for planting, with some reasons for what has been said on that head, we shall now proceed to

prepare the borders for each kind of fruit, adapting the soils that will preserve the trees healthy, and bring the fruit to its utmost perfection in size and flavour.

THE soil and situation should be considered in fixing on a spot for a kitchen-garden, for if there is not a foot or more of good soil the expence will be immense, if the garden is only of a moderate size. The best natural soil for a garden is a light loam, and where eighteen inches deep of such a soil can be got the expence will be trifling.

To prepare Soil for Apricots.

THE favourite soil of the apricot is a light loam : if the natural soil is a rich loam of eighteen inches deep, dig from a common as much light sandy earth as will spread six inches thick all over the border ; to every load of sandy earth add one barrow of rotten dung. If the natural earth is sandy, add one third of rich loam ;

loam ; and to every four loads of loam add one of rotten dung. If the natural soil is gravelly, add one half strong loam, and to every three loads of loam one of rotten dung, and one of rotten wood earth, if it can be got. The composition should be laid on the border and trenched over three or four times that it may be well mixed ; the last time should be three weeks before the planting season, that the mould may be well settled before the trees are planted.

THE apricot is naturally inclined to shoot strong vigorous wood, especially when the border is rich ; dung is pernicious to all trees (vines excepted) but none suffer so much from it as apricots, for it makes them gum and canker.

APRICOTS should have more room than is generally allowed them ; the Turkey kind should never have less than thirty feet, although the wall is twelve feet high, and the other sorts from twenty to twenty-four feet, B 4

WHEN the planting season is come, mark out the distances, open the holes, and disperse the mould all over the border. Some time before planting prepare the following composition for that purpose, viz. four barrows of earth from that prepared for the border, one barrow of very rotten dung, and one barrow of light rich black earth ; this is the proportion, the quantity must be according to the plantation ; it must be well mixed and a barrow and a half laid to every hole. The little quantity of dung used in planting can have no bad effect, it will make the tree push forth fine strong roots the first year.

To prepare Borders for Peaches and Nectarines.

PEACHES and nectarines are so much alike in nature, that they thrive very well on the same soil ; what is said of one may be understood of both : the right preparation of the borders is very material, as on this the future success depends.

PEACHES

PEACHES love a strong loam, in which they thrive best, and will come to great perfection. Dung is a great enemy to them, as it causes them to shoot strong rambling wood, which is very detrimental to the trees ; it also causes them to gum, and prevents their bearing,

IF the natural soil is a strong loam, add one inch of very rotten dung, and trench the border over three times.

IF the natural soil is gravelly, add one half of strong loam, and two inches of rotten dung ; if sandy, which is the worst of all soils for peaches, add three inches of strong loam to one of the natural earth and one inch of rotten dung ; if a fine light rich earth, add one third of a good strong loam. The borders should always be trenched over three times, after the proper mixtures are laid on before planting. The following compost must be prepared for planting : four barrows out of the prepared border, one of light black earth, and one

one of very rotten dung ; one barrow to each hole. The proper distance for peaches and nectarines is seldom properly considered ; they are in general planted at equal distances, without regard to their growth, though many sorts require a great deal more room than others.

THE early sorts of peaches and nectarines should be planted from fourteen to sixteen feet, the late sort from eighteen to twenty feet. It is a general mistake in planting walls with peaches and nectarines to have a great number of sorts, that there may be a variety all the season ; six or seven good kinds properly chosen are sufficient to afford plenty and variety during the season.

THERE are many peaches so much alike that it is difficult to distinguish them even by good judges of fruit.

IT is a common practice to plant fire walls with those that seldom come to perfection in England without heat.

By this method, it is true, fine fruit may be obtained that cannot be had otherwise, but where there is not a great quantity of walling it is attended with many inconveniencies.

It is absolutely necessary to allow the trees rest, at least every third year; the late sorts will not then ripen their fruit or wood if the season is not favourable; when that is the case, much of the young wood will be hurt by the frost in winter, and the tree so mangled, that there is often a disappointment upon an increase of the succeeding year.

If the walls are all planted with good kinds that are eatable in favourable seasons without heat, by the help of fire they may be brought to the greatest perfection, and in the year that there is no fire, they stand a good chance of ripening their wood if the season is but indifferent.

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The Preparation of Borders for Pears.

THE properest soil for all kind of pears is a strong loam : when the natural soil is such, add one inch of very rotten dung, and trench the border over three or four times.

SAND and gravel are great enemies to all kind of pears ; on such soil they moss and canker, and never produce good fruit ; it is generally stony and has no flavour : where the natural soil is such, there must be added a great deal of loam, and two inches of very rotten cow-dung.

IF the natural soil is a stiff clay, in that case it will be proper to raise the border eight inches above the level of the ground, which must be with the following materials : coal ashes sifted very fine, wood earth where leaves and sticks have rotted, soft sand from a pit, and rotten horse-dung of each an equal quantity, to be laid on
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the clay, and worked over until i is well mixed ; in which pears will thrive and produce most excellent fruit. The mould for planting in this stiff border is, one barrow from the border, one of rotten dung, and two of wood earth : this will be fit for the trees to strike root in, after which they will grow very well.

No kind of pears should have less room than twenty feet, and many of the more vigorous sorts should have twenty-four or thirty feet distance at least ; for when they have little room they grow so full of young wood and require so much cutting, that they never bear well.

THE compost for planting with (except the clay border) is, two barrows of the prepared mould, one of rotten horse-dung, and one of light rich mould ; put one barrow of it to a hole.

PEARS are a fine fruit and lasting, if brought to perfection. There are many of
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the French kinds that are equal in goodness, if not superior, to many peaches: an agreeable entertainment in the winter months.

THOSE that soonest come to perfection in England are, the winter Boncrétien, the Chaumontelle, Easter Bergamot, Virgoulé, Colmar, Beurré, Crafan, and St. Germain.

THERE are some of the above, viz. the Crafan, Beurré, St. Germain, and sometimes the Colmar, prove tolerably good in fine seasons, but are so inferior to the same kinds in France, that if compared together they would appear a different sort of fruit. By planting them on a fire wall and giving them a little heat from setting until they are fit to pull, it improves them beyond the conception of those who have not seen the experiment. In small gardens where the south walls cannot be spared, if the west aspect is flew'd it will answer for pears and is much better for apricots, the fruit is larger and much better flavoured;

cherries likewise are larger and not so subject to vermin as on a south aspect.

The Preparation of the Borders for Plums.

GRAVELLY light soils are the best for all kinds of plums ; they bear high flavoured fruit in great quantities ; they are not so large as when planted in strong earth, but the quantity and richness of the flavour make amends for that deficiency.

IF the natural soil is a loam, add an equal quantity of poor light sandy mould from a common.

IF a rich black soil, add one third of sandy loam and one third of poor gravelly earth from a barren common. If the natural soil of the borders is a light sand, add one half of a stronger loam : if the natural soil inclines to clay, it is very unfit for plums ; it must be made light or there will be little hopes of success. One half of the earth must be taken out of the
border

border and replaced with light rotten wood earth if it can be got, or with rich black earth: to every load of earth add one of fine small gravel. To all the different soils add one inch of very rotten horse-dung, then trench the whole border over three or four times; the oftener the clay border is worked the better. In all of these preparations plum-trees will thrive and bring their fruit to great perfection.

THE proper distances for plum-trees are from sixteen feet to twenty; it is much better to have fewer trees and allow them room to spread; they will be the handsomer, and bear a greater quantity and better fruit; for trees that are crowded produce much wood and little fruit.

To prepare the Borders for Cherries.

CHERRIES thrive best in a fine light rich loam; in such they bear great quantities, and the fruit has a high flavour. If
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the natural soil be a strong loam, add a large quantity of soft pit sand until it is almost a sandy loam : if a sandy soil they will thrive tolerably well, but if three or four inches of strong loam were added, the trees would be more vigorous and the fruit much larger ; in a sandy soil they will be sooner ripe by ten days than in any other mould : if the natural soil is a light black earth it will answer very well. If the natural soil is a strong loam inclining to clay, add soft sand, rotten wood earth or any other light soil to make it light.

To all of those different mixtures must be added two inches of very rotten dung, that has been turned several times. The whole must be trenched over three or four times that the border may be well mixed before planting. The distance for cherries of all kinds is from eighteen feet to twenty-four ; this may seem a great distance, but there will be more fruit on one tree that covers twenty-four feet of wall, than

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there would be on two trees standing on the same length of ground.

THE only objection that can be made to this great distance is, that it will be some years before the wall is covered; but if the method of training the trees here directed be followed, they will soon cover it: however, to remove that objection, plant standards between, which may run into fruit without any regard to the trees, for they must be cut out as the dwarfs advance.

THE composition for planting is, four barrows of the prepared mould for the border, to one of very rotten horse-dung.

IN the composition of the mould for planting, there should be always ready some of the prepared border mould; what is meant by that is, some of the mould of the border, the trees are to be planted in, after it has been trenched and well mixed: this is to be observed in all the different kinds of soils.

To prepare the Borders for Figs.

FIGS thrive only in a fine light rich earth; their large roots are long and smooth, and push out many small fibrous roots which are too tender to make their way into a stiff mould; on this account there are little hopes of success, unless they are planted in light rich mould.

If the ground is gravelly or sandy, the cleaning of a pond that has not been drained for some years, and rotten wood earth might be added, until there is sufficient to make it light and rich.

THE distance a fig-tree will spread on a wall in proper soil is very great: there were some old fig-trees of a large size which covered a great length of wall in many parts of England that were greatly hurt in the year 1739.

FIGS should be always planted at the distance of twenty feet from each other;

for if there is not room to lay in young wood, there will be very little fruit. The composition for planting these trees is two barrows of fine light mould, one of rotten horse-dung, and one of rotten wood earth. It should be observed that in the directions for planting mould, the quantities must be proportioned to the size of the plantation.

THE proper soil for an orchard is a fine light loam, they will grow and bear fruit in all good earth that is twenty inches deep, and a dry bottom.

CLAY, sand, or gravel are very unfit to plant fruit-trees in ; for though the ground be well prepared before planting, they soon decay.

WALNUTS, if planted for fruit, should have a good, light, rich, deep soil. The trees raised in the nursery, that have been removed at least three times, are the properest ; the top-root being destroyed, the

side-roots run horizontal, and then they bear great quantities of fine fruit.

CHESTNUTS planted for fruit, should be treated in the same manner as walnuts ; but they will thrive in worse ground.

MULBERRIES should be planted on a dry light earth, not too rich ; the ground all round them for six yards should be covered with grass ; for if it is dug, they never bear any quantity of fruit, and what they do, will be very indifferent.

FILBERTS will thrive, and bear great quantities of fruit, if planted on a dry, light gravelly soil, and the fruit will be much sweeter, than the fruit of those planted in rich or strong land. If the walks in the kitchen-garden are of the same soil with the quarters, there is no necessity for the borders to be very broad ; but if they are less than ten feet, the walks should be prepared the same as the borders, before the gravel or sand is laid on, which should not exceed four inches.

IF there is a fruit wall near a mansion, it would be neater to have the gravel laid close to the wall: it will be no detriment to the trees, provided the ground is properly prepared before the gravel is laid on; and once in three years it must be taken up to lay some fresh compost to the trees.

THE preparing the fruit borders of different kinds, so that each sort of fruit may have its proper soil, is not so great an expence as what is bestowed in the common method of making all the borders in the garden equally good.

To keep the trees in heart, and the fruit in perfection, there must be some fresh compost laid on the borders every third year.

IF these directions are carefully observed in preparing the borders, and planting the trees, there will be no doubt of having good trees and fine fruit, provided they can be kept from blighting.

T H E R E

THERE have been many things prescribed to prevent and cure blights, none of which have yet been found effectual. However, there are a variety of things that are great helps ; and it is my opinion, the reason of their miscarriage is owing to the directions not being duly observed.

I SHALL give a receipt that has done great things ; and where the directions have been minutely followed, have never failed, as I could hear of.

A Preparation to prevent Blights.

PROVIDE two tubs that will hold two hogsheads each, if the garden is large and a great number of trees ; if a small garden, tubs that hold one hoghead each will be sufficient.

PUT into one of the tubs two pecks of clote lime ; fill up the tub with clear water, stirring it up from the bottom.

NEXT day draw off the water, as long as clear, into the empty tub, fill up the lime tub with clear water, stir it up, and when clear, draw off as before. This must be repeated every day until there is a hoghead of clear lime water.

To a hoghead of clear water must be added six pounds of flour of brimstone, and four pounds of tobacco dust, which is difficult to mix the sulphur and dust with water; take a small tub, into which put the sulphur and dust, add a little water, and mix them gradually, adding more as it grows wet; thus you must proceed until the whole is mixed: it must then be put into the tub of clear lime water and well stirred; it is then fit for use.

THERE is a liquid that is squeezed from the tobacco in pressing, which is much better than the dust; those that are near a tobacconist, may get it for a trifle. One pint of it instead of the four pounds of dust. A hand-engine is very proper for washing

washing the trees, but where there is not one, it may be done with a water-pot and rose, standing on a ladder.

A PECK of fresh lime added to that first put in, will make six hogsheads of clear water, which must be drawn off as before; the same quantity of sulphur and dust (or liquid) must be added to every hogshead of clear water. The trees should be washed as soon as the buds begin to burst, at least three times a week. At that season the nights are in general frosty, therefore the trees should be washed between seven and nine in the morning. When the season is farther advanced, it will be found necessary sometimes to wash them till the beginning of June; the frosty nights being then over, they may be washed from five to seven o'clock in the afternoon.

WHEN the leaves begin to spread, if any of them curl, they should be pulled off. This wash is also good for gooseberries
and

and currants ; it has brought peach-trees to flourish that were thought past all recovery.

THE foil being improper often causes them to blight, and to grow in such a rude manner that the best instruments in pruning cannot keep them in order ; when that is the case, the foil and depth of the trees roots should be examined. If the foil does not correspond to any of those kinds directed, for the kind of fruit growing *in it*, the border should be properly prepared, and if the roots have got too deep, they should be raised.

IF the roots of peaches or nectarines are too deep, and the trees above eight or nine years old, it is better to plant near one ; all other kinds of fruit may be moved after bearing thirty or forty years.

HAVING now gone through the preparation of the borders, planting the trees, and given some directions to prevent their blighting,

blighting, I now proceed to the management and pruning of them.

The Management and pruning of Apricot Trees.

THE spring after planting apricot-trees, as soon as the buds begin to push, head them down, if the trees are healthy and strong, to six eyes, if weak, four will be enough.

RUB off the fore-right shoots that are produced on the stock, and nail the side branches as soon as they will reach the wall.

IF the tree was left with six eyes, there will be at least two shoots of a side; if to four eyes, two branches of a side, which should be nailed horizontally at five or six inches distance. The latter end of October they should be pruned, if they have made vigorous shoots, to eight, nine, and ten inches; if weak, three, four, and five, will do: they should be nailed directly.

IN the spring, when the buds begin to push, all the fore-right eyes should be rubbed off, and the young shoots laid regularly in from the last year's wood, at five, six, and seven inches distance, which should be nailed as they advance in length all the summer. It is the common method to spur apricots; but it is better to keep them full of young wood; the fruit is much larger, and the blossom is not so liable to be killed by the frost in spring, as that on the spurs which is so far off the wall.

THE next October the young shoots must be shortened according to their strength, to four, six, eight, and ten inches: perhaps there may be some very vigorous shoots, which must be cut to eighteen inches or two feet long, if there is room to lay it in and the young shoots that come from it, if not cut it clean off.

IN spring the fore-right buds must be rubbed off; as the tree is now large, this work must be performed at different times,
and

and the wood for next year laid in from time to time until the tree is well furnished all over. The young wood should be laid in from the buds that stand fair, on the sides of the last year's shoots; and none suffered to grow but those that are laid in for wood. It must be observed, that no stone fruit is fond of being cut at this season: much work may be performed in a little time by rubbing off all superfluous buds. If this method is followed the tree will be handsome and produce good fruit, and will not be subject to gum, which occasions the loss of many a tree.

WHEN a strong luxurious branch is produced in any part of the tree, it is best to cut it close off; for if it is shortened to produce wood, which is often recommended, it never answers, for the shoots that come from it are never good, and are very subject to gum.

Of

*Of the Management and Pruning of Peaches
and Nectarines.*

IN the management of peaches and nectarines there will be necessarily repetitions of some things that have been said on the management of apricots and other trees; but it will (I imagine) be more agreeable as well as useful, to have ample directions on these subjects we are treating of, therefore I shall plead its utility as a sufficient apology for such repetitions.

ALL peach-trees, proper for planting, should be young and vigorous, have only one stem, and never headed down until the spring; as soon as they begin to push, they must be headed down, if strong trees, to six eyes, if weak, to four eyes: when headed, open the ground a little on that side next the wall, and press the tree gently to it, until the top where it was cut off touches the wall.

IT

It will be of great advantage to have an equal quantity of fresh cow-dung, and stiff mould mixed, as thick as common paste, and put on a thin layer all over the cut part directly ; this will prevent the frost, sun, or wet, from penetrating the wound, and keep it from gumming, to which they are subject. As soon as the young shoots will reach the wall, they should be nailed horizontally ; all the fore-right buds must be nibbed off, and if the season is very dry, they should have a little water ; if the trees were headed down to six eyes, they will produce at least two good shoots of a side : the lowermost of each must be cut to six or eight eyes, and the upper ones to four or five the next pruning time. The trees that were headed to four eyes may have good branches on each side, which may be cut to six eyes.

In the spring all the fore-right shoots must be rubbed off as they appear ; from the shoots that were cut eight eyes, three or

four good shoots may be laid in from each; and those cut to six eyes, two or three proper branches may be laid in for wood; all others must be rubbed off, that those laid in may have room to grow and the fruit to ripen: they should be nailed as they advance in length, for it is very prejudicial to the young wood of peach-trees, to be blown and twisted by the wind, especially where they are strong, as those that are managed thus will certainly be.

IN the autumn they must be pruned, and shortened according to their strength; if they have thriven as they should, they will be all vigorous and in great heart; but none of the branches should be cut shorter than six eyes, and the strongest to nine and ten; they should be nailed as soon as possible after they are cut. The next spring they will bear plenty of blossoms, and as they are now come to a pretty good size, they must be carefully looked over, and all the branches that are not to be laid in for wood, rubbed off
while

while young, that there may be no business for the *knife* at the pruning season, but to shorten the branches. This is the best method to keep peach and nectarine trees in good order.

PEACHES and nectarines are in general long in losing their leaves ; autumn is the proper time to prune them ; the trees now being large, it is necessary to have a full view of them before they are cut, which cannot be done when full of leaves. It is very prejudicial to the buds to pull off the leaves when green ; for sometimes the bark is torn, which often causes the young shoots to gum, and spoils the wood in many parts of the tree.

A PERSON with a sharp knife will cut them off very soon, so that the whole tree may be seen : they should be cut an inch from the bud, which will soon decay, and drop off without injuring any part of the tree. It is a great advantage to prune peaches and nectarines early, the young

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wood then being of a soft nature, it has a large pithy heart, and is liable to be greatly injured by rain and frost, if it happens soon after cutting. When peach-trees are cut early, the days being long, and the sun of great force, the wounds are soon healed, and they are as safe from frost as if they had not been cut.

ALL trees push fast at the extremities, and none more so than peaches and nectarines ; it is the nature of them to grow in winter, notwithstanding the severity of the cold frosty weather, in defiance of which they make an early push. If they are not pruned in the autumn, they cannot be done with safety before the beginning of March, and then the frosts are often severer than they are any time in October. The extremities of the branches which are cut off in pruning, in hard winters, by the end of February are swelled round ; this is wasting the substance of the tree to no purpose ; neither do the buds
blow

blow so strong as those that are cut in autumn.

THERE are many objections made by some gardeners to the pruning of fruit-trees in autumn, but they are in my opinion in general frivolous, and not worth confuting. Let the directions given be carefully attended to and they will all vanish. As soon as convenient, after the trees are pruned, let them be nailed; all their extremities bending a little to the right and left, from the middle of the tree, never allowing two shreds to bear the same way, nor permit the branch to rest against a nail, for it cankers it.

THERE is many a good tree injured by being pinched in the shread; the best method is to un-nail the whole tree, and then dispose of the large wood regularly all over the wall, the young wood will fall in properly of course.

IN the spring, when the trees begin to

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push,

push, they must be looked over, and all fore-right and side-buds rubbed off, leaving none but those that are to remain for next year's wood: this can be done now with more certainty than when the leaves are farther advanced; but as many buds will push afterwards, this work must be repeated as often as there is occasion, that is, as long as any superfluous wood grows. If these directions are followed, they will be thriving trees, the fruit good flavoured, and but little use for the knife at the pruning season.

THE thinning of peaches and nectarines is very material; on the judicious performance of this depends the flavour and size of the fruit. It is not the largest sort of peaches that are the best, but a large peach of a good kind is much higher flavoured than a middling sized one of the same sort. If there are a great many set in clusters, it is best to thin them at three different times; the first should be when they are as large as a small pea; three then may be
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left in each cluster; in twelve days time another may be taken off, and in a week after that another, always leaving the largest. The distance must be according to the size of the fruit; on the nutmeg kind two and three inches; on the early sorts, three or four inches; on the largest sorts five, six, and seven inches; nectarines do not require to stand so thin as peaches; three, four, or five inches will be sufficient.

PEACHES and nectarines are generally thinned with the hand, but that is not a good method; for where they are set very thick, it is impossible to pull them off without damaging the stems of those left on the tree: the best way is to cut them off with a sharp knife, leaving a thin piece of skin on the tree, which will soon drop: if they are thus managed, neither the tree nor fruit is hurt, both of which often happen in the common method of thinning them. All large vegetables ought to be banished from the peach borders; then two inches of the prepared

composition every third year will be enough to keep the trees in good order.

THE first time the border is recruited, the compost used should be the same as in preparing the border before planting; but in a few years it may be necessary to make some change, it being proper to keep the border to a stiffish loam.

The Management and Pruning of Pears.

IN spring when the buds begin to shoot, the tree must be headed down according to its strength; that is, four or six eyes. As soon as the branches will reach the wall they should be nailed. If there are five shoots, which sometimes happens (there will soon be a handsome tree) two of each side must be trained horizontal, that in the middle upright, that it may be strong against the pruning season. The tree headed down to four eyes, if it produces three good shoots, will also soon make a good tree: a shoot on each side must be trained

trained horizontal also, and the middle one upright.

IF the new headed tree produces only two shoots, they must be nailed a little sloping to the right and left. If the tree with two shoots is strong, at the pruning season cut them to six or eight eyes, three or four good shoots may be expected from each of them the following season ; but if they are weak, cut them to four eyes : there should be no more than two shoots from each allowed to grow. The only way to strengthen a weak tree is to lay in little wood, the branches then will make strong shoots. The reason that so few proper branches can be laid in from shoots cut to six, seven, and eight eyes is, that some of the buds are fore-right, and some close to the wall ; neither of which can be trained with any propriety.

THIS summer many spurs will form on the branches trained horizontal, and on the body of the tree, which should not be

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allowed

allowed to grow nearer on trees that bear small fruit than four inches, and on trees that bear large fruit six or seven inches. There will also much young wood sprout all over the old wood of the tree, which should be rubbed off when young, where spurs are not wanted ; where they are, they should be allowed to grow until the wood is hardened, then broke off six inches from the branch it grows on, and in the pruning season cut to one eye.

THE next pruning season the same method must be followed in every respect as in the former, until the wall is covered.

THE horizontal branches in small pears should be six inches distant from one another, and in large fruit eight or nine. When the tree is formed and the spurs at proper distances, there will a great many young shoots sprout out of each bunch of the spurs, and if allowed to grow large, will spoil them : they should be all pulled off when young but one shoot, which must remain ;

remain ; for if they are all taken off, it will cause several of those that are forming into buds to shoot into wood ; this shoot may be shortened when the wood is hardened (for after that time no more wood will shoot) and taken off close in the pruning season.

IF care is not taken the spurs of pears will grow large and a great way from the wall ; they should be thinned to two inches distance, and every year some of the longest cut clean off. It would add greatly to the beauty of the fruit to thin them ; they would also be better flavoured ; but this must be performed after a very different manner from the method used in thinning stone fruit.

PEARS drop very much after they are as large as pease, and there is no knowing those that will from those that will not, until they begin to shine, which is a certain sign they will grow : they may be thinned by cutting the stalk with a sharp knife.

knife. The borders must be recruited the third year after planting; for borders where pear-trees grow are in general made too free with in growing vegetables, therefore they must be repaired in proportion as the earth is exhausted. The first composition that was laid on them should be the same as that made to prepare them for planting; but as a few years working and growing garden stuff may greatly alter their nature, they should be nourished with such a composition as will keep them as near as possible to a good loam, and not too stiff.

The Management and Pruning of Plums,

THE tree should be of one year's growth from the graft, for if older they do not produce good wood when headed down, but luxuriant shoots and long rambling branches.

THE spring after planting, they must be headed down to six eyes, as most kind
of

of plums are very free growers, and if headed too close, they shoot strong and are apt to gum. From trees headed down to six eyes, four or five proper branches may be expected ; if five, the odd one must be nailed upright, and two on each side trained horizontal : if there are only four, one on each side must be trained horizontal also, and the other two inclining to the right and left, keeping the middle of the tree open ; all fore-right shoots must be rubbed off as they grow, during the summer. Next autumn the shoot that was nailed upright must be shortened to six eyes ; if very strong, which it often is, it may be cut to ten eyes ; if the shoots were carefully rubbed off in spring and summer, there would be little use for the knife.

THE tree that had a branch on each side shortened to six eyes, should have four proper branches of a side, three on each must be trained horizontal, the other two shortened to six or eight eyes and nailed as before

fore directed : the next summer it will blossom and bear fruit : there should be as many proper branches laid in on each side as can be done at a regular distance ; all fore-right and irregular shoots rubbed off as they appear, and none allowed to grow but those designed for wood. Next autumn the middle branches must be shortened to produce more horizontal ones : this should be repeated every autumn and in the spring, as many branches laid in as can be properly got, until the space allotted for the tree is full ; but none of the branches trained horizontal should be stopped until they have run as far as intended.

THE distance of the horizontal branches in small plums should be from three to four inches, and the spurs on the branches from two to three inches. On the larger sorts the distance of the horizontal branches should be from four to six inches, and the spurs from three to six. The spurs must not be allowed to grow
into

into large clusters; they must be thinned a little every year, and those the furthest from the wall cut clean off.

SOMETIMES great bunches grow where the spurs sprout, but that is seldom when the tree is well managed; when it happens they should be cut clean off with a chissel, and some of the mixture of dung and earth spread over the wound to prevent its gumming; there will much young wood sprout from the place next spring, one shoot of which should be saved to procure a new spur. If plum-trees are managed as here directed, they will last long in good order and bear a great quantity of good fruit.

The Management and Pruning of Cherries.

CHERRY-TREES for walls should be one year old from budding when planted; they produce much better, and make a handsomer tree than those that are older.

THEY should be planted in the autumn :

tumn : as soon as the buds begin to push in the spring they must be headed down to four eyes ; when the young shoots reach the wall there should as many be laid in as can be properly trained ; that is, those that come from the sides of the tree ; for all fore-right buds and also those between the wall and tree must be rubbed off.

No tree disagrees so much with the knife as the cherry ; if it is rightly managed in the summer, there will be little use for that instrument at the pruning season : if there are four proper shoots after heading, which is often the case, as the buds of cherries are more opposite to one another than in most trees ; one of each side must be trained horizontal, the other two more upright, but still inclining to the right and left.

IF it should happen (as it sometimes does) that two branches can be laid in on the one side, and only one on the other, cut one out, that there may be an equal
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number on both sides; for if the tree is started with more branches on one side, it will be impossible ever to make a handsome tree: if the odd branch can be nailed upright in the middle to shorten it for more wood, it will answer well; if the number of branches are even, the two middle ones must always be trained a little more upright, that they may be strong against pruning time to shorten and produce more wood. The trees that have upright shoots in the middle must also be shortened; whatever number of branches are produced from those that are shortened in the middle of the tree, an equal number must be laid in horizontal on each side; if there is an odd branch that can be nailed upright it will do, if not, let it be cut out; if the number of branches are even, the two next the middle must be trained more upright to shorten at the pruning season for more wood. This must be done every year until there are as many horizontal branches as will fill the wall.

CHERRY

CHERRY-TREES in general produce plenty of spurs, but there are sometimes spaces where there is only young wood which grows single on the horizontal branches; this must be encouraged to grow until the wood is hardened; they then should be shortened to six inches, and in the pruning season cut to two eyes to produce spurs.

THERE are often on cherry-trees small shoots that are full of blossom buds; these must be shortened to an inch and cut to a leaf bud.

THERE is no tree so subject to vermin as the cherry; the spurs generally grow in thick clusters; grubs often lodge there and destroy the blossom before it comes out, and frequently after it blows: to prevent this, the spurs should not be closer on the horizontal branches than three inches; as they grow in clusters they should never be nearer than half an inch to one another; that admits a free air all round

round the blossom, and there is no harbour for vermin. The spurs should be kept as close as possible to the wall, and when they are thinned, those the farthest from the wall should be cut off.

THIS management will answer for all kinds of cherries but the morella, which requires a very different treatment: the morella should be planted and headed down in the same manner as the others; what branches it produces should be trained regularly on each side at as great a distance as they will admit of, that others may be trained in between them the following summer. There are no branches to be shortened, but as many laid in, as properly can be to the wall, at three and four inches distance; which must be trained as horizontal as possible.

IN the spring, when they push, the bud next the bole of the tree should be laid in for wood; and at six inches distance, and continue the same over all the tree: they

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must

must be nailed as they advance in length. The next autumn the whole tree should be un-nailed, and all the branches spread equally : if there is not room to lay young wood in the heart of the tree, there may some of the oldest, that have bare wood, be cut out, which is all the cutting they should have. They never should be spurred, as they bear the fruit on the last year's wood, which being very small, should be laid in at three inches distance. They should be carefully looked over in spring and summer, and all fore-right buds, as also those that are not designed for wood, rubbed off; for as the branches are laid in so close, if they are suffered to grow rude it spoils the fruit and wood for next year. If they are managed thus, they will continue long in good order, and bear great quantities of fruit.

THE morella is always planted on a north aspect, being thought fit for nothing but baking; but when planted on a south wall, and they hang on the tree till they
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are black, it is a fine flavoured fruit and has an agreeable sharpness.

THE management and pruning of pears, plums, and cherries, heading them down, training the branches the first year, and shortening them at pruning time, are so much the same, that it may seem superfluous to say any thing more than what is directed for pears. This might answer in general, but there are some particulars belonging to each sort which should not be omitted.

THE proper distance of all kinds of cherries is from eighteen feet to twenty ; they bear much better so than when they are more crowded.

*The Raising, Management, and Pruning of
Figs.*

THE best method is to raise them from layers, which should be laid in the spring ; they will be fit to plant the spring following.

lowing. If a garden pot full of light rich mould was sunk in a convenient place in the border where a young branch could be laid, it would soon take root, and might be cut off from the mother plant and removed into shelter the beginning of winter. The laying the young branch will no ways impede its growth. As soon as it has shot an inch pinch out the heart, it will produce several shoots, and will be a fine tree to plant next season. The best season to plant figs is the middle of March, the roots then are soft and spongy, and often miscarry if planted in autumn, especially if the winter is severe, although they should be covered.

If the layer was in a pot, the roots should be pared off, and the ball put into the ground. The layers that are upon the mother plant should be planted as soon as possible after taken off, if in the same garden, with all their roots, which must be well spread, for they will be numerous. If they are to be some time out of the ground

ground they should be packed in moss, and before they are planted all the small roots cut close off, and the large ones shortened.

ALL the branches of figs should be nailed horizontal, or they will grow too vigorous and bear little fruit. The proper time to prune them is in October. If the frost has not destroyed the leaves, they must be cut off; the little they bleed at this season will not be of prejudice to them.

THE only pruning they require is to cut out some of the strong old wood, to make room for young shoots to be regularly trained over all the tree, for on them only fruit is produced. As soon as pruned the late figs must be pulled off, and all the branches nailed close to the wall, and covered before the frost grows severe.

IN summer, all the fore-right branches

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and small wood that is not wanted should be pulled off when young, for if they are permitted to grow strong they bleed much, which is a great detriment to the tree and fruit.

The Management and Pruning of Apples.

IT is uncommon to plant apples against walls, unless on north aspects, where sometimes a nonpareil is placed to fill up a vacant spot.

N O N P A R E I L S and golden pippins planted on the south and south-west aspects are superior in flavour to many peaches, and preferable to most plums; no good garden should be without a few trees in a proper aspect.

A P P L E - T R E E S planted against walls should be young and vigorous, and have only one stem free from canker, to which distemper they are subject.

THEY

THEY should be grafted on free stocks, that is, stocks raised from the seeds of large four apples, or crabs; but I think crabs make the finest trees.

THE proper time for planting is in autumn, unless the ground is subject to wet in winter; in that case the spring is preferable. They must be headed down in spring, and treated in every respect exactly the same as pear-trees: although their fruit and foliage is very different, they are much of the same nature; the only thing in which they differ from pears is, that they are apt to have their spurs grow too close, which causes green worms to lodge amongst them and eat the bottoms of the blossoms; this is often erroneously called a blight.

DWARF apples, round the quarters in a kitchen garden, should be planted at six, seven, or eight feet distance, if on French paradise stocks; but if on Dutch paradise stocks they may be planted at eight,

nine, and ten feet distance; but these should never be planted facing south walls, even if the borders are twelve feet wide, and the walks of equal breadth. If apples on Dutch paradise stocks are planted on the borders of the quarters behind the north aspect, and allowed to grow twelve or fourteen feet high, and the garden is of an easy descent, it will form an agreeable view in summer from the walks on the south side of the garden.

WHEN Dutch paradise apples are planted to grow twelve or fourteen feet high, they must stand at ten feet distance, and be trained to fill up the whole space; but in so loose and easy a manner that they may appear natural, and have no resemblance of a hedge. When they are allowed to grow so high, there is some difficulty in keeping them from being naked at bottom; they must not be trained thick at first, and have some branches shortened every other year, to keep young wood in the middle and bottom of the tree;

tree ; the spurs must not stand too close, nor allowed to grow in too great clusters.

IF the apples were planted in autumn, and were fine young plants with three or four good shoots, they must be headed down in spring, the two lowermost to six or seven inches, the others to about ten or more, according to their strength.

THEY must be looked over in summer, and no tufts of young shoots permitted to grow but single shoots, and they at a proper distance, a foot and eighteen inches.

IF they have thriven well, there will be four or five good shoots at a proper distance on each of those that were headed down ; and must be shortened at the pruning season to produce more wood, that the tree may be properly furnished as it advances in size.

THERE is no certain rule for shortening
the

the branches (as in wall-trees) two or three of those next the root must be cut the shortest, to fill the bottom of the tree. The top will always be full enough, and should be thinned in the pruning season, that the bottom part of the tree may have free air to perfect its wood and ripen its fruit. Those on Dutch paradise stocks should be treated in the same manner, only they should be kept thinner, as they grow much taller.

ESPALIERS are in general laid aside; they require a great deal of labour, and are so stiff and formal that there are few good kitchen gardens now have any.

THEY hide the quarters in summer, although they render the kitchen garden more agreeable to walk in; but this is not to our present purpose. The kitchen garden not being a fit place for walking, unless to those who are fond of its product, and seeing the things growing and brought to perfection; if the garden is kept clean

and neat, the growing of vegetables is what it is designed for, and ought not to be hidden.

IF there are neat frames made, it is a great expence at first, and they are formal and stiff, in a few years they begin to decay, and then must be patched and mended; in winter they are very unsightly.

THOSE made with pales are the best; for although they are to repair every year, after the second or third, it is a trifling expence, as all the work is done by the common labourers, even if the pales are bought at the dearest market, which seldom happens, as they are to be had in most country places. In summer, when the trees are in leaf, those espaliers made with pales are the handsomest, because not so clumsy; and in winter the frames have no great beauty.

THE trees for espaliers, whether apples or pears, should be young plants, having
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the same qualities as those for walls, and be treated in every respect the same, in planting, heading down, pruning, and training.

ALTHOUGH there are dwarfs, or espaliers, all round the quarters of a kitchen garden, it will be far from being sufficient to serve a family. Thus few small families have large kitchen gardens, the apples for winter, summer pears, and other common fruits that can grow even in a large kitchen garden, will be inferior to the consumption of a small family. A small family should have in some convenient place a few baking apples, summer pears, some of the common baking plums, a tree of baking pears, some damsons, and filberts on standards.

THE above are necessary in all families ; but when they are planted in the kitchen garden they entirely spoil the herbage. Where the family is large there ought to be a large orchard, in which there should be
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a quantity of all the above fruits ; to which should be added, walnuts, chestnuts, mulberries, and almonds. In the north they seldom succeed, but in the southern countries they bring great crops.

The Cultivation of Turnips, and the Method to keep them from Frost in Winter.

THE cultivation of turnips is so well known all over England, that it may seem superfluous to give any further instructions with regard to their culture : yet, notwithstanding they are already brought to great perfection, there are still some particulars that are not generally known, which if put in practice, would render that useful vegetable of double the value it is at present estimated, for the feeding of cattle.

I SHALL endeavour to give some useful directions respecting the sowing in drill and broad cast, and the proper soils for this kind of husbandry. Dry, light, gravelly

gravelly soil is the best kind for turnips, in which they should be sown broad cast, and never in drills; for the ground being naturally dry, if thrown up in ridges it becomes so light, that if the season should prove very dry there will be little prospect of a successful crop. The more the ground is worked, and the finer it is made, the moister it will be, although plowed when very dry, and a great drought follows.

DUNG laid on light ground for turnips should be so rotten, that it will spread like ashes. The best method to sow such ground is to harrow it first, then plow it, and spread the dung as you would lime or ashes: this done, give the whole a triple harrow, which must be very heavy, to incorporate the dung properly with the mould. Sow the seed, and give the ground a single turn with a light harrow, drawn with small thorns, to prevent the harrow making drills, leaving a smooth surface. If the weather is hot and dry,
and

and the ground light, it would be of considerable advantage to the turnips to roll the ground a day or two after the sowing. If the ground is very strong, drilling will be a more certain method for a good crop than any other I know in practice. When that is the case, the land must be plowed and harrowed frequently ; it should be harrowed after every plowing, but not till just before it is to be plowed again ; for if it was to be harrowed soon after the plowing, and much rain was to fall, it would be stiffer the next plowing than if it had not been harrowed at all.

If the ground is very rough after the first plowing, which should always be performed when the surface is dry, and a week or two of fine dry weather should follow, and then a good deal of rain, the day after, if it was well harrowed with a heavy harrow, it would break the earth very fine ; but it must be plowed immediately, for if it was to rain much, it would become a solid mass, and it would be impossible to get it into order in proper time.

It is proper to sow after a thorough harrowing. This management will also answer for broad cast. If the ground is very rough, the day after plowing, it must be harrowed with a heavy harrow, and then rolled with a spike roller, which will break many of the clots.

If the ground is not subject to wet standing on it, in the winter the drills should not be raised more than three inches above the level; for in winter when the sheep are wet, many of them would be lost when the drills are high. If the land is liable to have the wet continue on it after rain, the drills should be raised in proportion, and then the turnips should be pulled, and the sheep fed in a dry field. It must be observed, that fat sheep should not be fed on such ground.

THE distance for horse-hoeing and plowing between the furrows or ridges should be two feet; but if the ground is to be cleaned with the hand hoe, they
may

may be from sixteen to twenty inches. The horse-husbandry is preferable where the land is stiff, as the plowing and turning the land, that is to be sowed with turnips the next year, makes it fitter for sowing; besides it is full as good as a summer's fallow.

WHERE the horse-husbandry is used, and the distance so great as two feet, it is also absolutely necessary to have them two years in the same field, that is, where the opening between was the first year, should be the place for the drill the following year; by this means the field is equally dunged, and all of it has two years fallow.

WHERE this method is practised on stiff land, and the land kept clean, it is of greater advantage than can be conceived, and the future crops will amply repay the expence and trouble.

The dung for sowing turnips in the drill way should be very rotten, and turned
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until it is so fine that it may be sown by hand into the drill ; and if some good sand was mixed with it, and well incorporated, it would be of great service to the crops of turnips, and a great benefit to the land afterwards.

WHEN the land is very rough, rolling it with a spike roller would break many of the clots, which should be performed the day after plowing ; let it be harrowed well with a heavy harrow, and then rolled ; plow it again directly after rolling.

It is a common error to make spike rollers too heavy. If the ground is very rough (which is generally the case when they are used) it is very difficult to draw them ; besides they press the hard lumps that will not readily break into the ground like so many stones, which will be found very troublesome the next plowing.

THE hoeing and keeping clean the ground, where turnips grow, should never be neglected. Some content themselves
with

with pulling out all the great weeds that are above the turnips, and would prevent their growth; but pay no regard to the small ones, even with the turnips, and so full of seed that they stock the ground with annual weeds for several years.

THERE has been a great deal written about the cultivation of turnips, but little said concerning their preservation, which is an article that would be of immense profit if properly attended to, that is, to save them from the frost.

THE beginning of long and severe frosts in general are moderate at first; so that the cattle feed on them with ease for some days before the turnips are frozen through; in that time the tops of many of them are bit, the frost continues, and often a fall of snow comes, which lays on the ground perhaps some weeks. As soon as there is a thaw all those that were bit rot directly, and many of the largest turnips also (although not bit) which are

in general spungy, and when once frozen through they soon rot.

WHEN the turnips are come to their full growth, on a fine dry day pull up all the largest, and cut off the tops an inch from the turnips for the sheep to eat, for if they are cut close they are subject to rot.

IF this method is put in practice there will be few of the turnips lost by rotting, and save hay in the severest weather, which will be a great advantage in years when that article is scarce; the small ones will resist the severity of the winter, and be good feeding late in the spring: the turnips will be of great value, as they will afford sufficient food through the winter; but few must be given at a time, that they may be all eat before they are frozen.

FROM November 1776 to March 1777, although the winter was not so severe as many I have known, yet the frequent changes from frost to snow and rain

rotted one half of most fields of turnips that were large. If the ground is dry, a large pit dug and covered with straw to prevent the wet and frost will keep them : a thatched hovel will answer, or they may be made into a long or round stack, but that is not so convenient for taking them out, being so very liable to tumble down,

THE sheep should be fed in the severe winter weather on dry grass fields in the fold, and if the ground is stiff where the turnips grow, it would be better not to feed on it in the spring.

IT is a great profit in hard frosts and deep snows to have plenty of turnips to feed with ; and what makes it still more profitable is, that most of those turnips that are then feeding and fattening the cattle would have been rotting in the field as soon as the thaw came, if they had not been secured from the frost. According to the present method of feeding sheep on turnips, when there comes a deep snow they

they must have hay, and the turnips they should be eating are rotting in the field, and are of little service to the land they rot on. If the cattle are fed on the largest of the turnips in winter, the small ones that are growing will not run to seed so soon in the spring as the large ones would have done, so that there will be food for the cattle much longer, and between the turnips, and the grass, there will not be a scarcity of food for sheep; those that were last pulled would last until the grass was grown, which would be a great advantage to the farmers.

THE advantages in managing the turnip crop, as here directed are many, and easily put in practice; the expence of hoeing is trifling, and very little more trouble than feeding with hay, and the profit to the farmers will be very great if the whole is put in practice.

Of Cabbages.

CABBAGES may be taken up and laid close together in the earth and covered

with pease or bean straw to keep the frost from them ; that light covering will admit the air and prevent their rotting.

WHERE cattle are fed with cabbages in the house, if they are cut and laid some time there the heat of the place will thaw them, although they were froze through, but they must be laid single, for if they are in heaps they will remain frozen for a long time. The feeding in winter with vegetables that are not frozen must be a great advantage ; they are more nourishing and make the cattle much fatter and sooner.

IT is much easier to improve grass land than that in tillage, and there are methods to collect materials to enrich all kinds of land which are more lasting than clean dung, and would turn to more profit than dung, even if it were to be had at a moderate price ; for the benefit of dung laid on land without a proper mixture is wasted in three or four years, although laid on
very

very thick, but it will last many years when a proper composition is made. I have made some experiments which answer exceedingly well, and there are many that would be infinitely more beneficial to poor land, that would not be so expensive, as most of the quack hard manures are; they never exceed one crop (even the best of them) and after being used for years the farm is not a farthing better, nor the tenant much richer than when he began to use them.

IF those who have poor farms would keep more ground in grass, and endeavour to enrich a field or some part of one every year, they would find it more advantageous than sowing so much land with corn, which obliges them to have recourse to expensive, hard manures or no crops.

T H E E N D.



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